ABSTRACT

The present invention is to produce a silicon crystal wherein the boron concentration in the silicon crystal and the growth condition V/G are controlled so that the boron concentration in the silicon crystal is no less than 1×10^{18} atoms/cm^3 and the growth condition V/G falls within the epitaxial defect-free region α_2 whose lower limit line LN1 is the line indicating that the growth rate V gradually drops as the boron concentration increases. Further, the present invention is to produce a silicon wafer wherein the boron concentration in the silicon crystal and the growth condition V/G are controlled so as to include at least the epitaxial defect region β_1, and the heat treatment condition of the silicon crystal and the oxygen concentration in the silicon crystal are controlled so that no OSF nuclei grow to OSFs. Moreover, the present invention is to produce a silicon crystal wherein the boron concentration in the silicon crystal and the growth condition V/G are controlled so that they fall in the vicinity of the lower limit line LN3 within the epitaxial defect-free region α_1.